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ABSTRACT

Hartwick College (New York) developed a strategic vision for its future and invested significantly in information technology to transform that vision into reality. Guided by its president and trustees, Hartwick, a small, independent liberal arts college, formed a strategic plan in phases. At a formal board retreat in 1993, with faculty, students, and staff, the college affirmed its values, developed a statement of purpose, and brainstormed ways to better educate for the future. Over the next 18 months, dozens of task forces helped create an institutional five-year program with technology as a central feature. The college equipped students, faculty, and staff with personal computers; worked to resolve platform and software issues; garnered widespread enthusiasms and support; created a campus computer communications network; and changed its administrative computing system. Ten lessons for trustee boards were identified: (1) information technology implementation must be mission-driven; (2) information technology must fit the institution's values and future; (3) information technology is a resource; (4) try to meet 90 percent of needs 90 percent of the time; (5) think workable technology; (6) standardization is key; (7) focus on people not technology; (8) think about major trends in information technology; (9) information technology is costly; and (10) information technology investments are a leap of faith. (JLS)

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Association of Governing Boards
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# Case Study:
# How a Commitment to Technology Advanced Our Strategic Plan

By Richard A. Detweiler

AGB OCCASIONAL PAPER No. 32

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## Executive Summary

Hartwick College—a small, independent liberal arts college in New York—developed a strategic vision for its future and invested significantly in information technology to help transform that vision into a reality. Hartwick's board gave President Richard A. Detweiler a clear charge upon his hire: to initiate and lead a planning process that would yield measurable results and enable the college and its students to thrive in a rapidly changing world. From the beginning, Detweiler emphasized that Hartwick would invest in information technology only if it were "an integral part of a collegewide plan, central to the college's future, and justified for programmatic, not technology, reasons."

Guided by its president and trustees, Hartwick formed a strategic plan in phases, starting with campuswide information gathering. At a formal board retreat in 1993, which involved faculty, students, and staff, the college affirmed its values, developed a statement of purpose, and brainstormed ways to better educate people for the future. Dozens of open task forces then helped create an institutional five-year program over the next 16 months. Technology was a central feature; it was viewed as "a method for accessing, processing, and communicating information" and was to be implemented pervasively. The board ultimately took a leap of faith in approving the plan.

Detweiler describes in detail how the college put the technology part of its plan to work: equipping students, faculty, and staff with personal computers; resolving platform and software issues; garnering widespread enthusiasm and support; creating a campus network of voice, data, and video wiring; and changing the administrative computing system. Remarkably, this transformation did not bankrupt the college's financial reserves.

Today, technology is part of everyday life at Hartwick, where there is a ratio of better than one computer per person. Detweiler stresses that this is an ongoing investment. But his main message is how technology supports his college's mission. To readers contemplating similar changes on campus, he advises, "If information technology is central to an institution's role, then put it in place. If it is not, then implement only that technology that is necessary and invest instead in other things that will help your institution fulfill its purpose."

The main essay includes commentaries from trustees, a faculty member, and the chief information and planning officer at Hartwick. It is followed by a sidebar, "Ten Lessons for Boards."

# Case Study: How a Commitment to Technology Advanced Our Strategic Plan

**By Richard A. Detweiler**

Several years ago, Hartwick College, a small, residential, liberal arts college in upstate New York, made a commitment to use information technology to further its long-range educational goals. The knowledge and experience we gained by implementing our strategic plan—and by determining the central role of information technology in that plan—have important implications for other colleges and universities facing similar decisions. This paper describes how a planning process that is mission-driven—rather than technology-driven—can benefit a college or university by helping it define and fulfill its real goals.

I arrived at Hartwick in 1992 as a new, first-time president. I inherited the leadership of an institution with a spotless academic reputation, a decade of growth, and a stable enrollment of about 1,500 students. Hartwick also had a deep interest in educating for the future: More than a decade ago, members of the college community adopted a curriculum for the 21st century, its latest commitment to its long-standing tradition of equipping young people to understand and contribute to their rapidly changing world.

Although the college had grown increasingly strong in the last 10 years, the board of trustees knew it needed to take bold action so the college would continue to flourish. When the trustees selected me as president, they made it clear that the college community must begin thinking and planning strategically. My experience in higher education trend analysis, institutional planning, and information technology would prove useful to the planning process. While the trustees obviously held the college's traditions, values, and accomplishments in high regard, they also understood that standing still likely would contribute to the college's eventual decline or even failure. Consequently, they were prepared to commit significant institutional assets to clear, sensible plans that had measurable outcomes.

From the start, I made it known that I was not going to be the "technology president" some had expected. Several weeks after I arrived, I had an unforgettable encounter with a faculty member and a staff member who believed that because of my experience in campus computing and networking, I would immediately catapult the college into the information age. (See "A Faculty Member's View," page 6.)

Rather, I reiterated my commitment to investing in information technology if it is an integral part of a collegewide plan, central to the college's future, and justified for programmatic, not technology, reasons. They were stunned and more than a little angry when their dreams for a glittering technology future seemed to fade, but I urged them to take the long view. If they believed technology made sense for Hartwick, they should begin discussions with their colleagues about the potential educational value of information technology and its importance to our future. If colleagues shared their view, the role of information technology would become a natural priority in the upcoming planning process.

Before proceeding to the formal planning process, I wanted to gain an understanding of the root values upon which Hartwick College had grown. I wrote to every trustee, alumnus, parent, student, faculty member, staff member, and friend of the college, asking them to describe the attributes of a Hartwick education they most celebrated. Their responses were remarkably consistent: Hartwick prepared its graduates exceptionally well for the challenges of the lives people actually lived; it did so in an intensely personal, individualized way; and it fostered the development of thinking, principled citizens who contributed to society.

After this information gathering phase, the planning began in earnest when the trustees decided to hold a retreat in January 1993. They invited faculty, students, and staff to clarify Hartwick's fundamental education values and to assess how programmatic initiatives could better

fulfill those values. With the help of our facilitator, Arthur Levine, now president of Teachers College Columbia University, we affirmed our values and developed a statement of purpose to which we often refer when we discuss program issues and new services and programs:

> *Our purpose as a liberal arts college is to educate people who are prepared to thrive in and contribute to the world of the future; people who are prepared to meet the personal, intellectual, and social challenges of a rapidly changing and increasingly interdependent world.*

Next, we brainstormed to identify ways to better educate people for the future—a future in which information technology would be a normal, routine, and necessary part of everyday life, personally and professionally.

## The Planning Process Unfolds

After the retreat, we created dozens of task forces to bring the brainstorming concepts to fruition. I gave each committee a specific charge and a general time line; I warned participants that the work would be enormous but promised that each task force would disband as soon as it fulfilled its charge. Each task force was open to all interested trustees, faculty, staff, and students. Each task force reported periodically to a planning coordinating group that included the board chair, several other trustees, senior administrators, faculty, and student leaders. We issued regular reports to the campus to keep everyone informed of developments. This was a highly consultative but not consensual process: From the outset I said I would make the choice when no clear direction emerged.

Over 16 months, we developed a complete institutional five-year program, facility, and financial plan for the college that has guided all decision making since that time. The plan contained a series of program initiatives designed to enhance the curricular and cocurricular life of the college, including a new approach to global programs, the development of a center for student "professional" development to replace the traditional career center, and a commitment to information technology. We also identified primary facility and human-resources needs, developed a financial plan to support continuing initiatives and new proposals, and developed several monitoring ratios to keep us accountable for progress. To help manage the process, we named a senior administrator as chief information and planning officer. (See "A Chief Information Officer's View," page 9.)

With the encouragement of trustees and faculty, we also developed an "oops" plan that described the actions we would take if the plan did not work financially. In it, we agreed to reduce staffing levels rather than scale down our program objectives. Using a highly consultative approach—but not one that relied upon achieving consensus, we repeatedly circulated the entire plan for comment and made adjustments as warranted. Ultimately, the board adopted the plan, which we labeled "The Five Plus Plan" because it would take a little more than five years to complete.

Even before the plan was fully developed, we began to implement its most compelling feature—information technology. A planning task force chaired by a sociologist experienced in information technology began work on the more specific information technology issues and questions: What does it mean to make use of information technology within the context of the liberal arts and sciences? How can we do a better job of educating people to be effective in the future?

After considerable discussion, the group reached two primary conclusions:

- Information technology should be viewed as a method for accessing, processing, and communicating information.
- Information technology must be implemented pervasively. That is, to be a normal part of everyday life, it must be present whenever and wherever a person normally works or thinks.

Our goal was to design and implement a system that would give every person the opportunity to be more effective in thinking and working—all the time, everywhere. Given this concept of pervasiveness, we either could equip every student dormitory room, classroom, and the library with computer systems, or we could equip every person with a notebook computer system that he or she could take wherever needed. We concluded that equipping every person with a notebook system, rather than equipping every place, came much closer to our definition of pervasiveness. With a notebook computer, the student

could work equally productively in a dorm room, classroom, library, under a tree, or at home over Thanksgiving break.

Within three months of the retreat, the information technology task force recommended that we issue every student, faculty member, and staff member a computer. Their recommendation was based on a sound, mission-based rationale and strategy and the outline of a financial plan. Faculty and staff could choose between a notebook or desktop system, since some already had systems at home. Of course, this recommendation surprised no one, because a good deal of information already had been disseminated throughout the process. I agreed with the recommendation and, at a faculty meeting, asked faculty members if they had significant opposition to our going forward with this computer initiative. Little opposition was expressed.

With trepidation but unanimity, the trustees authorized us to proceed. Indeed, there was cause for worry: Making it work financially, coping with a five-fold increase in the number of computers on campus within a few months, redeploying computing staff, designing training, and selecting hardware and software were just some of the issues that had to be addressed. The trustees ultimately took a leap of faith. Collectively, we took a deep breath and set out to transform Hartwick College. (See "A Trustee's View," page 10.)

## A Faculty Member's View

**Reid Golden, Associate Professor of Sociology**

As the faculty member President Detweiler referred to, I was chagrined that our new "technology president" did not endorse our plans wholeheartedly and exude maximum enthusiasm for Hartwick's bright technological future.

For several years, I had been involved with major upgrades of campus computing and networking technology and knew what the faculty wanted. But instead of the full-speed-ahead charge I expected, I was advised to wait patiently for the planning process to proceed as members of the campus concluded that information technology must become an integral part of a Hartwick education.

What I learned while impatiently waiting was the importance of developing broad-based (not unanimous) agreement during the implementation of a strategic initiative. Widespread faculty support of the information-technology initiative was ensured by using a broadly involving and informative planning process. The six months we invested in establishing this involvement and cooperation has yielded a thoughtful, forward-looking focus on the part of faculty.

It makes little sense to heavily invest in information technology unless it is used in the classroom. On any campus there will be a slim minority of faculty members who become enamored of technology and rush to incorporate it as much possible in their teaching. To convince the others, we advised them to start in increments and identify the problem areas of their courses. What segments of their curriculum do students struggle to understand, make for particularly tedious presentations, or require students to spend more time or energy than they typically put forth? Faculty can view information technology as a way of dealing with these perplexing problems. It can be simple, such as encouraging students to "build" a term paper with word processing, using graphically oriented programs to show statistical concepts, or using e-mail and voice mail to give students easy access to a professor. None of these is particularly complex, and all add greatly to learning.

Our students live in a visually rich, even hyperstimulating environment. They will work in a world where information technology is ubiquitous. Given that, I am convinced that incorporating information technology into liberal arts is necessary, important, and worthwhile. Does it add value? We cannot measure its value precisely, but neither can we measure the value of chalkboards, central heating, overhead projectors, video presentations, or semesters abroad, all of which also represent technology improvements that have spawned vast and permanent change in education. Information technology is another improvement.

*Reid Golden, a member of the faculty since 1986, was appointed associate dean in 1995. His e-mail address is goldenr@hartwick.edu.*

## Putting the Plan to Work

The transformation involved several steps. Within four months of trustee approval, we issued or put in place about 600 new personal computers, including one to every member of the freshman class, one on every faculty desk, and on most staff desks. In addition, upper class students had the opportunity to buy into the program; we issued about 150 more systems to them. Each subsequent year, we gave notebook systems to every member of the entering class so that by the fall 1996, we had a ratio of more than one computer per person.

To support this phase of the plan, the trustees increased tuition by about $550 a year. Computer technology is an integral part of the Hartwick educational experience, just like the cost of the library. Since we factor in the cost of the library in tuition and do not charge students a separate library fee, we figured the cost of computer technology also should be built into the cost of attending Hartwick.

Once students were equipped, the work of the task force shifted to more practical and pragmatic implementation issues:

• ***The platform decision.*** The inevitable Windows versus Macintosh discussions arose because our campus previously had supported both operating systems. It quickly became evident that if we were to achieve our goal of pervasiveness, we had to adopt a uniform Windows environment. Otherwise, the total cost for hardware and software for a Macintosh solution or for a mixed Mac and Windows solution would be prohibitively high. Our faculty task force chair encouraged rational analysis rather than emotional commitment. With great sadness but remarkable prudence, the faculty computing planning task force voted unanimously to implement a Windows operating system campuswide. For particular application needs—graphic-design software for art, for example—we would install small Mac labs.

• ***Winning over the skeptics.*** What should we do about the few modern-day Luddites who claimed no interest in this computer stuff? The task force decided that no one had to take a computer and no one had to use it. Before long, however, the obvious value of the program convinced even the most resistant and tentative among us. Nearly everyone realized that faculty could be more productive and that students could be required to rewrite papers interminably, for example.

To help staff and students gain confidence, familiarity, and skill with the system, we held many noncredit "how to" workshops, created telephone and walk-up help desks and kept them open long hours, assigned the help-desk advisers to visit residence halls in the evening, and generally encouraged people to ask for help from their more proficient colleagues. After a while, we realized that most people needed just enough training to turn the computer on and learn that they can't break anything; thereafter, they are well on their way to learning how to best use their system.

• ***Setting standards.*** Some people on campus expressed their desire to use their favorite software. While the task force did not require anyone to use anything, we offered no support for word processors or spreadsheets that were not "official." Within months, nearly all had switched to standard software once they recognized the advantages of sharing compatible files and using software for which support and upgrades were available.

• ***Campus support.*** To support this massive increase in the use of information technology, we reorganized and reallocated staff time dramatically, developed and implemented training programs, established a software library, and encouraged faculty to begin integrating information technology into their pedagogy.

## Creating a Network

Putting processing power literally at each person's fingertips was only part of our goal. We next had to resolve the complex issues of deploying a full campus network that would give everyone the ability to access and communicate information. Once again, our liberal arts and sciences "education for the future" mindset about information technology dictated that we could not just think about computers and computer communication. Rather, we needed a system that would link people to other people and people to information, regardless of location (on campus or around the world) and regardless of mode (data, graphics, voice, or video). We set out to develop a complete and pervasive network system of integrated

data, voice, and video.

A three-person team, chaired by our information and planning officer, coordinated the efforts of a larger group of staff and faculty in assessing numerous solutions to develop a campuswide network. After nearly 18 months of work and with repeated attempts to involve technology partners from the commercial sector, we ultimately selected a single vendor to help us design and deploy our network communication system. We did not choose our partner for its high-tech credentials (although our vendor provides network switching systems for NASA, Microsoft, and Apple, among other organizations) but because this company understood our thinking and strategy. It shared our notions of pervasiveness, the value of integrated technologies, and our view of information technology as a tool.

Our goal was to provide every person who learned or worked at Hartwick with his or her own set of connections that would provide access to high-speed computer data, video, and voice, including with voice mail. To accomplish this goal, we needed to invest about $1,000 per user, or $2 million total, for costs that included all new internal wiring for data, voice, and video; fiber-optic links among 28 buildings; all new network hardware and management software; a new digital PBX; a voice-mail system; an upgrade to our VAX mainframe computer; and a video control and distribution system with satellite dishes.

This phase was a clearly defined step in our trustee-approved Five Plus Plan, but as we neared the point of requiring authorization from the board, anxiety grew. Buying individual computers was one thing; it was a process we could complete in steps. If it did not work, we could stop at any time and cut our losses. The network—a substantial, one-shot investment—was another matter, however. We were required to invest a lot of money up front, and we would be stuck with that large expense if the network did not fulfill our goals. In addition, it seemed that everyone had heard a horror story about enormous cost overruns caused by unanticipated problems or system failures and shortcomings.

We asked ourselves about alternatives. Could we use telephone company services? Why not do just a few buildings? Could we eliminate some services? Ultimately, however, our anxious moments were calmed when we recalled the logic of the mission and plan. The trustees granted their approval, once again unanimously but with their eyes wide open to the risks.

To fund this phase of the program, we raised fees by $400, this time primarily in room rates. For this additional fee, students receive telephone service with voice mail, cable television service that includes foreign language and educational programming, and a high-speed data connection that links them to the world and provides e-mail, access to our library system, the Internet, and other services.

With strong leadership and the enthusiastic help of many people, we installed all new voice, data, and video wiring and fiber optics between and within 28 buildings. We installed about 2,000 network connector wall plates, which consisted of a high-speed data connection for the computer, a video network connection, and a telephone connection. We also installed a network switching system and nodes, a digital telephone system, voice-mail system, video distribution system, and seven satellite dishes. We upgraded our central educational computing systems and provided network connections in classrooms and all offices. Some technology and facilities staff members devoted thousands of hours to this process, and many faculty, staff, and family members volunteered to help with the work during evenings and weekends. The project was completed in eight weeks—and it came in under budget, with expenditure for this entire system of about $1000 per user!

## The Consequences of Innovation

As a result, we now have in place a campuswide, pervasive information-technology system that people readily use. Although we have not yet transformed all of higher education, we did transform our corner of academe. We believe that Hartwick is at the forefront of a revolution that is likely to accelerate in the next decade or two as everyone in higher education views and uses information technology as a routine tool for improving educational, personal, and institutional effectiveness. (See "A Board Chair's View, page 12.)

Already, this concept of information access has toppled an important institutional domino—the administrative computing software system. When I first arrived at Hartwick, I was brazen

enough to say publicly that the administrative computing system needed to be replaced. By doing so, I had called someone's baby ugly, an unpardonable pronouncement. I did not fully understand that the existing system had been lovingly grown over a couple of decades by computer center staff and some computing faculty. It was, in a delightful and positive sense, their child. Further, it worked and it was tailored to meet many particular interests of key individuals. Theoretically, the system was capable of being adapted to almost any form.

From my vantage point, however, I saw its major flaws. It required a large staff to keep it current, it did not integrate administrative operations and information, and it did not permit a variety of people to gain access to various parts of it. While the staff rightly said that the system could perform any task, doing so required new programming—an unacceptable limitation, to me at least. My philosophy was quite simple: I may not know today what information I want linked tomorrow, but when tomorrow comes, I want to be able to make that link immediately, without waiting for someone to write a new program.

Based on the negative reactions my early comments elicited, however, I knew that going forward with a new system would antagonize the entire technology staff. Other technology-related priorities at Harwick took precedence over an enhanced administrative system. I put the issue aside for a while.

## A Chief Information Officer's View

**Ellen F. Falduto, Chief Information and Planning Officer**

The Hartwick case makes it all sound easy. It isn't. Still, an institution should not shy away from taking a bold approach to institutional planning or taking on difficult challenges of making wise decisions about information technology.

I arrived at Hartwick in late spring 1993 after the dozen or so planning task forces already were at work. My charge sounded simple: "Make it happen." The true meaning of those three words was quite complicated: In two months, bring a campus up to speed to face the issues of logistics, financing, policy, procedure, staffing, and impact on people, and do this within the new president's rules for the game.

Hartwick is fortunate. It has a supportive community of trustees, faculty, staff, and students who believe in the college and who will exert every effort to make things happen. We also have our skeptics, naysayers, and those who simply want more time to buy in. Their reasons (whether they recognized them or not) were fear of seemingly abrupt and immediate change, a feeling that their old work was not being valued, a lack of understanding of the Five Plus Plan and its importance to the future of the college, a loss of power and influence, and an inability to adjust to a faster pace and more simultaneous activities. Our challenge was to continue to encourage the supportive community, bring the reluctant along, and convert the naysayers. We also knew that if the naysayers could not be convinced to buy in, we would have to take steps to minimize their negative influence on others. Meeting this challenge often meant finding new solutions and strategies as we interacted with people who, while they identify as groups (students, faculty, staff, trustees), have individual perspectives that define how they feel and what they commit to the institution. Information technology initiatives are as much about psychology as they are technology; conversion as much about rebaptism as changing hardware platforms.

I occasionally use a distance-running metaphor to describe our initiatives. When I started running, I didn't realize that I needed to think beyond snazzy shoes (the technology). I quickly learned otherwise. To run well, distance runners must make a commitment to training (user support), understand how they run (work), get the right equipment (technology), understand their motivations (individual psychology), and then start with a 5K race, not a marathon (master a small task before taking on the larger challenge). You have good training days and bad ones. You set personal records. You get stress fractures. You use simple and complex technologies to counter the problems that caused the stress fracture. You get your act together, and you see real progress.

*Ellen F. Falduto is Hartwick's chief information and planning officer. Her e-mail address is faldutoe@hartwick.edu.*

A few years later when interest in access to information had increased dramatically and the campus community had gained an appreciation for technology as a resource, I reopened the issue. Two factors made this possible. First, I began to require higher quality information for decision making and greater accountability for outcomes. Second, I asked the right question: Given that information is now an institutional resource to be used actively in decision making and management; given our need to provide greater access to integrated information; and given our need to provide additional administrative software features, what choices are available to us?

Our computer center staff proposed an in-house enhancement of our current system, a proposal that competed with those submitted by several outside software system vendors. After nearly a year of work, a committee of computer center staff and administrative users gave me a complete list of each option's strengths and weaknesses. I asked the chief planning officer and the head information technologist to determine the total five-year cost for each option (including software, hardware, staffing, and maintenance), and to negotiate contract options. Based on functionality and total cost, I selected a software vendor's system. This decision angered some people, but at least everyone knew he or she had an opportunity to be heard. Some computer center staff chose to be excited about opportunities for new learning and are fully engaged in different challenges; others, for whom the continued use and development of existing skills was more important, made a good decision to leave Hartwick. Because maintaining the new system required fewer people, we were able to reassign three-fourths of the staff to supporting network systems, users, and educational applications.

## Paying for the Plan

We still have to think long-term about paying for information technology. We cannot simply buy computers and networks and consider the expenditures "done." Investments in computer technology are continuing. Information technology continues to evolve, and systems have to be replaced roughly every three to eight years. (Corporations typically plan two-year technology life cycles, while colleges and universities tend to extend the useful lives of their equipment.) We have allocated 8 percent to 9 percent of our an-

### A Trustee's View

**Robert W. Moyer, Chairman, Board of Trustees, 1990-96**

Information technology is a tool to advance our strategic plan—no more, no less. The technology component is becoming a common thread in the educational experience at Hartwick, but it is being woven by the professors and the students, not imposed on them wholesale. I cannot stress enough our lesson: If you don't have a plan for serving and providing services to students, you can forget the technology.

No one, including our visionary president, can tell us where we are going. We do know that good planning and some luck has placed us in a unique position to take advantage of change and help students and faculty to manage—and in some cases—lead this change. The board believes in the strategic plan. We use it as our road map; we check off the milestones and benchmarks and keep ourselves focused so that we can let the professionals implement and educate.

Are we concerned about the direction of all higher education and the tremendous cost burdens we are placing on parents and our endowment? The answer is a very definite Yes. But we explicitly agree that we not only want to survive, we want to grow and prosper by delivering a unique educational experience on a residential campus with caring faculty who prepare their students to live in and contribute to the global community. The board's primary role in this regard is threefold: (1) to understand and challenge the planning process, (2) to commit to the plan developed by the campus community, and (3) to monitor the plan to ensure it is being followed and adapted appropriately.

*Robert W. Moyer is the CEO of Wilber National Bank of Oneonta, N.Y. He welcomes inquiries at moyer@otsego.net.*

nual college budget to this effort. We budget so that personal computers are replaced every four years, and the network and administrative system are updated on an ongoing cycle with an amortized life of seven years. We use a "rebirth" strategy for faculty and staff computers: Faculty and staff with the highest technology needs may receive new equipment every year or two; their equipment is cleaned up, enhanced, and reissued to people with lower technology needs. Those with the lowest technology needs receive the oldest equipment. This approach can prolong the useful life of equipment to as long as five or six years. Students take their computer systems with them when they graduate after four years. This strategic effort requires a major, continuing investment.

Notebook computer costs exceeded our original estimates, but not by too much. We have addressed many budget concerns through a combination of reallocating existing budgets and staffing, identifying new revenue streams (having our own telephone company, for example), and obtaining grants for projects that need particular kinds of equipment. Rather than structuring services for academic or administrative users, we are restructuring our information-technology management operations to reflect the needs of all users. Our new structure will include new application development, user support, educational applications, and network services.

Today, the use of information technology is a normal, natural part of life at Hartwick. Technology is like a chair: It is useful and it changes the way you do your business, but you don't give it much thought. This is as it should be. If information technology is doing what it is supposed to do, it should not stand apart.

The board appropriately continues to view technology within the context of the strategic plan. The trustees have a copy of the plan in front of them at every meeting. Their role is to focus on the ways in which the technology is being used to support the college's values, mission, and future, not on the technology itself or how it is being managed.

## Far-Reaching Benefits

At Hartwick, education in its broadest sense is evolving. For example, I already see signs of change in faculty roles: Those faculty on whom technology has had the greatest impact have moved from standing and lecturing in the front of the classroom to the back or middle of the classroom, asking the questions, providing challenges, and guiding and shaping the learning. Most important, we are accomplishing goals that we identified in our strategic plan—to be more effective in educating our students for the world of their future.

Clearly, Hartwick has benefited from its information-technology plan in increased admissions and heightened visibility. However, we cannot attribute this growth to the information technology plan because we have made simultaneous program and innovative marketing changes in recent years. For Hartwick, information technology is only one part of our broader plan for our future. We also continue to invest in education improvements—global programs, student professional growth, and curricular and cocurricular enhancements—that help our students prepare for the future.

Perhaps higher education has transcended the era when the existence of information technology systems and networks by themselves can have a major impact on admissions. More important is a focused and coherent sense of purpose, and programs and priorities that support that purpose. If information technology is central to an institution's role, then put it in place. If it is not, then implement only that technology that is necessary and invest instead in other things that will help your institution fulfill its purpose.

In the longer term, however, all higher education leaders must redefine their educational communities. In the past, many structures of a college were predicated on the assumption that people had to convene to gain access to information. That central tenet now is being challenged as information increasingly becomes accessible to all people, all the time, wherever and whenever they want it. Learners now have direct access to information. Any student today can choose to be more expert on a particular subject than any faculty member by searching the World Wide Web and finding the latest information from researchers around the world.

The challenging question before us is whether learners still will come to our campuses to learn when we want them to, where we want them to,

and how we want them to. It seems likely that "educational community" will be defined much differently in the future. Faculty members may become more like guides, facilitators, and challengers who help students learn how to learn and think. This new role is evident now among some of our faculty members who pose questions and encourage students to do hands-on research, simulations, and electronic research to arrive at a wide range of answers—hypotheses, descriptions, explanations, and principles.

Our central challenge is to provide or support a smooth transition from the hierarchical educational world of our past and present to a more egalitarian and electronic educational world of the future. We already are seeing a dramatic growth in "campus-less" education. If we want to sustain campus-based education, we must create other compelling reasons for students to convene there. Our only other choices are to become a distance provider of electronic education or gracefully close our doors.

The gift that Hartwick's trustees gave me—and the gift every board can give a president and an institution—is this clear charge: Define a strategic direction, empower the president and the campus to make choices based on that direction, and be accountable for the outcome. With a sense of purpose based on the institution's values and mission and the courage to make difficult choices, the wise are likely to change and thrive.

## Ten Lessons for Boards

1. ***Information technology implementation must be mission-driven.*** Higher education leaders should not adopt technology simply because other institutions are rushing to install high-tech systems. Making a significant commitment to information technology is a rational and reasonable strategy only if an institution's mission requires it. As a first step, boards ought to participate in writing an outcomes-based mission statement that will help them determine where—or, indeed, whether—information technology fits into their college's strategic plan.

2. ***Information technology must fit the institution's values and future.*** Given the increasing emphasis on technology, a college or university may have difficulty succeeding in the future without investing heavily in information technology. However, information technology that is merely thrust into the matrix of other educational activities is likely to remain tangential, rather than central, to the institution's core pro-

### A Board Chair's View

**John W. Johnstone, Chairman, Board of Trustees**

When I was an undergraduate at Hartwick, state-of-the-art teaching relied on the classic "chalk and talk" format. Today, Hartwick has become a contemporary, high-tech learning center. This did not happen without trustee concern: We were troubled as we grappled with the idea of a full data, voice, and video network. Many on our board, especially those of us from industry, had seen the proliferation of data systems and were never sure that a payoff would be achieved.

Our "Five Plus Plan" is risk-intensive but crucial to our success. Believe it or not, at every board meeting all trustees have a Five Plus Plan in front of them, at the ready. We use it to guide our decisions for every action we consider or take.

Because of the plan, Hartwick graduates are extremely well equipped for the future. Almost 95 percent of two recent graduating classes either enrolled in graduate school or secured full-time employment within six months of graduation. We have invested in the future of our students from the ground up. Hartwick's special student-focused educational life, including our integrated information-technology system, will continue to make Hartwick grads attractive, highly employable candidates.

*John W. Johnstone is the former CEO and the current chairman of the executive committee of the board of Olin Corporation.*

cesses. If information resources do not fit institutional values, yet leaders perceive information technology to be vitally important, they must reexamine the institution's values and sense of purpose—a potentially agonizing and disruptive activity. If leaders do not confront the inconsistency between their values and the technology, they may waste their investments of money and time. If they do confront this issue and implement changes, they must be ready to face potentially devastating consequences.

3. ***Information technology is a resource.*** One real challenge is to help people see information technology as a resource—a tool to help create specific outcomes important to the institution. Some people become excited about the technology itself, others become threatened and fearful, and still others become passionate about a particular solution, such as the Macintosh or another system. When people acknowledge that information technology is a resource, they become more open to learning and doing new things.

4. ***Meet 90 percent of needs 90 percent of the time.*** Technology advocates on the faculty and staff often demand that institutions purchase the most current, high-tech systems. Because of both cost and rapid change, this demand creates expectations that few institutions can afford to fulfill. The guiding principle in information technology must be to adopt reasonable, use-based goals—to meet 90 percent of people's needs 90 percent of the time and to require that people go to a special lab or facility for unusually demanding or less-frequently used applications. Most people can actually accomplish an enormous amount with fairly low-cost solutions (e.g., high-speed modems).

Boards should not invest any more than is necessary in hardware to make the network function, since technology always will be cheaper, better, and different next year. Institutions that are considering expanding their networks should put in conduits with extra space for future wiring whenever they dig trenches between buildings, cut walls, or add rooms or buildings. If conduits are too expensive or impractical, they can install high-level wiring now for future use, if needed.

5. ***Think workable technology with large market share, not superiority.*** Although people become easily obsessed with making the "best" technology choices, the superiority of an information-technology product almost never has determined its dominance. A technology will be widely implemented when its adoption is easy and inexpensive and when it is reasonably workable. Widely used technologies—those with a great market share—will invariably be cheaper to buy, maintain, support, and update. The world is littered with the proud remains of people who have made great choices of superior technology, but as a result, have been grossly imprudent with their institution's financial resources.

6. ***Standardization is key.*** Perhaps the most common mistake is to believe that people have the right to use whatever software and hardware they choose. Having standard or "officially supported" products (hardware and common software such as word processors, database managers, and spreadsheets) is very important for two reasons. First, the cost of nonstandardization is too high. Large-volume deals are impossible in purchasing; more staff members are required for training and support; and personnel must first assess each user's configuration before adding hardware or software or resolving problems. Second, a critical mass of users is necessary before use really grows; it is the sharing, comparing, and mutual supporting that makes information technology work in higher education.

Accomplishing standardization is a two-step process. Start by recognizing that some people will be offended no matter what choices are offered. Then create incentives for institutionally supported choices. Make it possible for people to get more value out of those choices by offering added features and easier or cheaper upgrades. Similarly, offer incentives for developing a new pedagogy that uses information technology by granting released time or by counting such efforts toward promotion and tenure decisions.

7. ***Focus on people, not technology.*** Provide appropriate training, support, and reward systems to foster use, but keep in mind that faculty reward systems are perhaps most problematic. Should a faculty member's reinvention of a course to make use of information resources count when

he or she is being considered for tenure? Is a professor who responds to electronic inquiries from students every night thought to be especially meritorious and deserving of greater merit pay? In the new world of education, the answers are likely to be Yes.

8. ***Think about major trends in information technology.*** Information technology is converging. While current information technologies have different ancestors (computers, telephones, televisions, data networks), they are rapidly growing into devices that access, process, and communicate information. Part of this convergence is market-driven, part is technology-driven in that all these devices are controlled by computer chips that can communicate with one another.

As information technology becomes more useful and useable, it also becomes increasingly ubiquitous. While there is certainly a socioeconomic bias in its current distribution, it seems likely that the situation will evolve much as telephone service did: at first, information technology will be available primarily to the privileged; increasingly, it will become a commonplace tool for everyone.

These trends will influence investments in information technology in a decade or two. If it is commonplace, does the university need to fund it? If it is commonplace, can a school choose not to use it? In the meantime, institutions cannot ignore information technology or take a "wait and see" stance; they must make strategic decisions about whether or not to proceed with the technology.

*9. **Information technology is costly.*** For years, many have asserted that the deployment of information technology is a way to save money. Yet despite the best efforts of foundation executives, who funded proposals that claimed money would be saved and information technologists who have used phantom savings to justify funding, little data exist to support the "save money through information technology" proposition. In fact, a 1993 challenge offering a $1,000 prize to the college or university information technologist who actually could demonstrate that total institutional costs were reduced through information technology implementations remains unclaimed. It is important to recognize that expenditures are never one-time; information technology, like all technology, requires periodic updating. Also, be sure to include the cost of technology support staff in all cost analyses. If these continuing costs are not anticipated and budgeted, the institution is headed for financial crisis.

However, certain strategies can decrease the per-student cost of education through substantial investments in information technology. These approaches, based on distance-learning methods, will invest heavily in information technology delivery systems and Internet-based educational program development. They will have few faculty and administrators and extremely large student enrollments, with students working on their own time from their homes and offices. England's Open University, for example, uses this approach on a massive scale, without even the benefit of interactivity; it uses low-tech paper and the British mail system to reach students.

Starting an entirely new school, rather than redesigning a current university, seems a better way to implement an effective low-tuition, technology-based system. Indeed, having reached the same conclusion, governors at several western states are collaborating in a new electronic higher education system. Every existing college and university should recognize that, in the future, there likely will be low-cost, technology-based competitors for students whose goal is strictly a degree.

*10. **Information technology investments are a leap of faith.*** While teaching and learning benefit from information technology, there is little convincing evidence that education in its broadest sense is improved or that costs can be lowered. Since there are few universally accepted outcome measures to compare, proving impact is virtually impossible. However, it is clear that the future of education is being invented now, and some institutions will choose to be a part of this invention by making faith-based investments.

## About the Author

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